Gopal **Sharma**

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Education

University of Massachusetts, Amherst *Amherst, MA, USA*
PhD in Computer Science (GPA: 3.96 / 4.0) *2016 - PRESENT*

Indian Institute of Technology (IIT), Roorkee *Roorkee, India*
B.Tech. in Electrical Engineering (GPA: 8.6 / 10.0) *2012 - 2016*

Skills

- **Programming Languages:** Python, C++, Matlab
- **Scientific Computing:** Pytorch, TensorFlow, Keras, Scipy, Scikit-Learn, OpenCV, Eigen, OpenMP
- **Tools:** Git, Emacs, LaTeX, Visual Studio
- **Courses:** Machine Learning, Intelligent Visual Computing, Probabilistic Graphical Models, Deep Learning, Reinforcement Learning, Mathematical Statistics, Convex Optimization.

Publications

Conference Papers

- *ParSeNet: A Parametric Surface Fitting Network for 3D Point Clouds .* **Sharma Gopal**, Liu Difan, Kalogerakis Evangelos, Maji Subhransu, Chaudhuri Siddhartha and Měch Radomír. In 2020 IEEE/CVF European Conference on Computer Vision (ECCV).
- *Label-Efficient Learning on Point Clouds using Approximate Convex Decompositions .* Gadelha Matheus, RoyChowdhury Aruni, **Sharma Gopal**, Kalogerakis Evangelos, Cao Liangliang, Learned-Miller Erik, Wang Rui and Maji Subhransu. In 2020 IEEE/CVF European Conference on Computer Vision (ECCV).
- *Search-Guided, Lightly-supervised Training of Structured Prediction Energy Networks.* Amirmohammad Rooshenas, Dongxu Zhang, **Sharma Gopal** and Andrew McCallum. In 2019 Conference on Neural Information Processing Systems (NeurIPS).
- *Learning Point Embeddings from Shape Repositories for Few-Shot Semantic Segmentation.* **Sharma Gopal**, Kalogerakis Evangelos and Maji Subhransu. In 2019 International Conference on 3D Vision (3DV).
- *CSGNet: Neural Shape Parser for Constructive Solid Geometry.* **Sharma Gopal**, Goyal Rishabh, Liu Difan, Kalogerakis Evangelos and Maji Subhransu. In 2018 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR).
- *Persistent Aerial Tracking system for UAVs.* Mueller Matthias, **Sharma Gopal**, Smith Neil and Ghanem Bernard. In 2016 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

Journal Paper

- *Neural Shape Parsers for Constructive Solid Geometry.* **Sharma Gopal**, Goyal Rishabh, Liu Difan, Kalogerakis Evangelos and Maji Subhransu. Under submission in IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI).

Research Experience

Parametric Surface Fitting *Adobe, San Jose, CA*
Research Internship *May-Aug 2019*

- Worked on parametric surface fitting for 3D point cloud. Developed differentiable pipeline to fit bspline surface patches to point cloud.

Learning Visual Programs *UMass*
Research Assistantship *2018*

- The aim of the project is to induce programs using neural networks for visual softwares like Photoshops, Blender, Maya etc. We have done preliminary expriments for Constructive Solid Geometry that can generate programs of large lengths.

Exploring LSTMs for shape recognition *UMass*
Research Assistantship *Sep 2016 Feb 2017*

- The aim of the project is to exploit the sequential information present in uniformly rendered images from 3D shapes. We used LSTMs for processing sequentially rendered images for 3D shape recognition and retrieval tasks.

Activity recognition and Object tracking *KAUST*

Summer Internship *May July 2015*

- **Persistent Object tracking:** Experimentally demonstrated persistent object tracking methodology for swarm of UAVs. Developed a novel algorithm (C++ and PYTHON) to use object proposals (BING) for object tracking, based on the existing object trackers.

Word recognition in natural scene images *IIIT*

Summer Internship *May July 2016*

- Developed algorithms based on CNNs and bidirectional LSTMs to detect and recognize words in unconstrained natural scenes.